PRODUCT DATASHEET
Supplier-provided technical data

7-in-1 Soil Integration Sensor



Supplier: NiuBoL
Manufacturer model: NBL-S-TMC-7
Archive SKU: NBL-S-TMC-7
Price, availability, delivery and warranty: confirmed by quotation.

Multi-parameter soil probe for temperature, moisture, conductivity, pH and indicative N/P/K readings via RS485. Suitable for irrigation monitoring and soil observation; N/P/K and pH require the stated limitations to be retained.

Select the required configuration for your intended monitoring task. Supplier-stated ranges and performance figures are reproduced below. Source differences require confirmation of the supplied version; no retail price, stock, warranty duration or delivery commitment is inferred.

Configuration and measurement limitations

• N/P/K values are empirical estimates derived from conductivity and configurable factors. The manufacturer states they cannot accurately measure actual on-site nitrogen, phosphorus and potassium content.

• The manufacturer states that pH data may be unstable and should be used as reference only; a glass-electrode pH sensor is recommended for more accurate measurement.

• N/P/K values are empirical estimates derived from soil electrical conductivity and configurable factors. The manufacturer states they cannot accurately measure actual on-site nitrogen, phosphorus and potassium concentrations.

• The manufacturer states that pH data may be unstable and is for reference only; a glass-electrode pH sensor is recommended for more accurate measurement.

• Manual states N/P/K outputs are conductivity-derived empirical estimates and cannot accurately measure actual soil nitrogen, phosphorus or potassium; pH is reference-only and may be unstable.

• pH range/accuracy differs between manual (0-10 pH, ±1 pH) and quotation/catalogue (3-10 pH, ±0.6 pH). Moisture accuracy differs across sources. Confirm selected hardware/firmware version.

• The manual gives pH range 0-10 and claimed precision ±1 pH; the catalogue/quotation give 3-10 and ±0.6 pH. The manual also warns that pH can be unstable and is for reference only.

• Moisture accuracy differs: catalogue ±3% versus quotation/manual ±5%. Confirm the actual supplied version.

Source documents

2026 Product Quotations from NiuBoL-Michelle.pdf — PDF page(s) 20.

Weather Stations and Agriculture Sensors Catalog-NiuBoL.pdf — PDF page(s) 31.

7-in-1 Integration Soil Sensor Instruction Manual V4.0.pdf — PDF page(s) [1, 2, 3, 4].

Supplier-stated technical data — quotation

Parameter	Supplier-stated value / source wording
Supply Voltage	DC 5-24V
Output	RS485
Temperature range	-40-80 °C
Temperature accuracy	±0.5 °C
Moisture range	0%-100%
Moisture accuracy	±5%
Conductivity range	0-10000us/cm
Conductivity Accuracy	±10%
NPK range	0-2000mg/Kg
Accuracy of NPK	±2%
PH range	3-10pH
PH precision	±0.6pH
Protection class	IP68
Remark	Soil NPK sensor actually measures the electrical conductivity of the soil.

Catalogue page 31 — technical data

Parameter	Supplier-stated value / source wording
Soil temperature range	-40~80°C Resolution: 0.1, Accuracy: ±0.5
Soil moisture range	0-100%RH Resolution: 0.1%RH, Accuracy: ±3%
Conductivity range	0-10000us/cm.Accuracy: ±10%
NPK range:	0-2000mg/Kg Accuracy of NPK: ±2%
PH effective range:	3-10PH PH precision: ±0.6PH
Supply voltage	DC5V-24V □ DC12V-24V
Signal output	□RS485
Protection class	Ip68 submerged in water for long-term use
Operating environment	-40~80°C
Sealing material	Black flame retardant epoxy resin
Supplier statement	Lnstallation method: all buried or all probes are inserted into the measured medium
Supplier statement	Default cable length: 5 meters, cable length can be customized
Connection method	Pre-assembled cold-pressed terminals
Meamethodsurement principle:	Soil moisture FDR
Electrode length	65mm

Instruction-manual data — source-specific

Parameter	Supplier-stated value / source wording
Measured outputs	Soil temperature, moisture, electrical conductivity, pH, nitrogen, phosphorus, potassium
Supply voltage	DC 5-24 V
Current consumption	15 mA at 12 V DC
Interface	RS485
Baud rate	9600 bps
Temperature range	-40 to 80 °C
Temperature accuracy	±0.5 °C
Moisture range	0-100%
Moisture accuracy	±5%
Electrical conductivity range	0-10000 µS/cm
Electrical conductivity accuracy	±10%
Npk range claimed	0-2000 mg/kg
Npk accuracy claimed	±2% (manufacturer claim; empirical conductivity-derived values, not direct nutrient analysis)
Ph range	0-10 pH
Ph precision claimed	±1 pH (reference only; manufacturer warns of instability)
Working environment temperature	-40 to 80 °C
Sealing material	Black epoxy resin
Dimensions	138 ±1 mm long × 45 ±1 mm wide × 15 ±1 mm thick
Probe dimensions	65 ±1 mm long × 3 ±0.2 mm diameter
Probe design	Five pins; material text describes three solid stainless-steel, one hollow stainless-steel and one zinc-alloy probe
Communication	8 data bits, no parity; communication interval at least 1000 ms; Modbus read function 0x03
Wiring	Red: power +; black: power -; yellow: RS485 +; blue: RS485 -
Registers	0x0000: Temperature (example scaling 0.1 °C); 0x0001: Moisture (example scaling 0.1%); 0x0002: Conductivity (µS/cm); 0x0003: pH (example scaling 0.01 pH); 0x0004: N (mg/kg indicative); 0x0005: P (mg/kg indicative); 0x0006: K (mg/kg indicative)